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ABSTRACT

Longitudinal and intervention laboratory studies were conducted to investigate the effects of viewing televised violence on the aggressive behavior of elementary school children. In the longitudinal study 505 children were studied over a 3-year period. The measures used included peer nominated aggression, aggression anxiety and popularity, self-ratings of aggression, sex role orientation, fantasy behavior, and various measures of television habits including frequency of viewing, violence of favorite programs, and identification with aggressive male and female television characters. Results indicated that all the correlations between television violence and aggression were significant. A subsample of 132 children classified as high violence viewers were selected for intervention efforts. Half of this group were given a series of interventions. The interventions were designed to convince the children that TV violence is unrealistic and should not be imitated. The other half of the subsample formed a control group which was shown non-violent excerpts followed by discussion. In a later intervention, subjects were asked to write essays on why TV violence is unrealistic and why viewing too much of it is bad. Four months following intervention, measures indicated that aggression scores for the experimental intervention group were lower than for those of the placebo group. Additionally, no significant relation was found between viewing television violence and aggression in the experimental group, though a positive relation between these two variables existed for the placebo group. Extent of identification with TV characters (ability to discriminate between reality and fantasy) was demonstrated to be an important mediating variable in the relation between television and aggression. (Author/SS)

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Integrating Field and Laboratory Investigations of
Televised Violence and Aggression

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Approximately 20 years ago controlled experimental studies demonstrated the effect of visual displays of violence on the behavior of children in the laboratory immediately after exposure (Bandura, Ross and Ross, 1963). Around the same time field studies related naturally occurring exposure to television violence to the aggressive behavior of children in school (Eron, 1963). Although the laboratory studies were criticized as artificial and the real life studies as non-convincing, the data coming from these two different modes of inquiry were seen as corroborating each other and providing evidence for a causal relation between television violence viewing and aggressive behavior. Later a longitudinal study taking measures at two points in time ten years apart (Eron, Huesmann, Lefkowitz, and Walder, 1972) was interpreted as further evidence for a non-transient causal effect. However, these two lines of investigation, laboratory and field, were still separate and independent.

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Recently we have completed a three year longitudinal study utilizing both laboratory and field methods with the same subjects and have found this procedure to be a very powerful tool in substantiating the relation, delineating cause and effect and highlighting the important mediating variables.

The original longitudinal study group comprised 672 children in the public schools of Oak Park, Illinois, an economically and socially heterogeneous suburb of Chicago, and 86 children from an inner city school in the

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Chicago Archdiocese. Half of these children were in the first grade in 1977 and half in the third grade. They were tested in their classrooms in three hourly sessions a week apart in 1977, 1978 and 1979. Their parents were seen for individual interviews twice during the period from 1977 to 1979. Group data obtained from the child subjects have now been analyzed for all three years.

As indicated previously, we have also done a manipulative study with subsets of subjects who were in the longitudinal survey. The manipulation was an intervention designed to attenuate the relation between exposure to TV violence and aggressive behavior among high violence viewers. The intervention and the results will be described later.

We turn now to the three year longitudinal survey. In 1977 we started the study with 758 children, approximately equally divided by sex. In 1978, 607 children remained in the sample and in 1979 there were 505. Almost all of the subject mortality was attributable to children leaving the school system and the mortality rate did not differ by grade or sex. Measures taken at the three points in time included peer nominated aggression, aggression anxiety and popularity, self-ratings of aggression, sex role orientation, fantasy behavior, and various measures of television habits including frequency of viewing, violence of favorite programs, and identification with aggressive male and female television characters.

Results

Developmental Trends

Developmental trends in scores on a number of these variables have been established by the use of two cohorts overlapping in one grade. Cohort A was seen in the first, second and third grades; cohort B in

the third, fourth and fifth grades.

Figure 1 shows identical age curves for boys and girls in aggression score except that girls have lower scores than boys at each grade, but the differential is similar for all grades. The shape of the curve between grades 1 and 3 merits comment. There seems to be a dip in aggression score from grade 1 to 2 and then an increase to grade 3--and this holds for both boys and girls to an equal extent. The only explanation we have for this consistent dip is that we had to modify our peer rating procedure for the first grade. The routine procedure in all grades has been to give the nominators a randomly ordered list of names of all the children in the class who are to be rated and then the nominator crosses out all the names on the list that fit the description in the item. There is a separate list of names for each item. Because first grade children ordinarily cannot read well enough to recognize the names of other children, we showed them pictures of all the children in the class and they pointed to the pictures rather than crossing out names in order to make nominations. This procedure quite likely encouraged nominators to make many choices. Beginning with the second grade and thereafter, the more usual crossing out of names was used. At any rate, the shape of the curve is the same for boys and girls. In the third grade cohorts A and B have approximately equivalent scores. If the higher scores in the first grade can be considered an artifact of the method used, there seems to be a steady increase in aggression score for both boys and girls, at least from the second through fifth grades.

The similarity between boys and girls in developmental trends is seen also in Figure 2 which shows mean frequency of television viewing. There is an increase from grade one to grade 3 in cohort A; the two cohorts are similar in grade 3 and there is then a decrease in frequency of television

viewing from grade 3 to grade 5 in cohort B. The slopes for boys and girls are essentially equivalent although on the whole girls tend to watch television less than boys.

For amount of violence viewed (Figure 3), the developmental trend does not differ from total frequency of TV viewing, at least for boys--an increase from grade 1 to 3 and a decrease from grade 3 to 5, with the amount of violence viewed in the two cohorts at grade 3 approximately equal. This correspondence in trends between amount of violence and total frequency of watching is not surprising since TV frequency and TV violence are positively correlated ($r = .65$). For girls there is a decrease from grade 3 to 5; although from grades 1 to 3 the amount of television violence viewed remains about the same. Again, as with boys and the other variables we mentioned, the amount of violence in grade 3 is approximately the same in both cohorts.

Since amount of television violence viewed as well as amount of exposure to television in general peak at age 8-9, it is probable that the effect of violence viewing on behavior is strongest at this period. This lends credence to the existence of a critical stage and suggests that any intervention attempt would be most likely to succeed if it were instituted before or at least during this critical period. Age trends are also observed in TV realism (Figure 4), a measure of the degree to which the child believes one gets a realistic picture of life from various TV programs. It is not surprising that, as the child gets older, the belief that TV is realistic tends to diminish. Since, as we shall see, our intervention worked to reduce the TV violence-aggression relation by encouraging a more realistic attitude toward television in the experimental group of children, these developmental trends are important.

The age trends for preferred sex role behavior are not similar nor

are they as explicit for both sexes (Figure 5). It seems that girls increase in preference for masculine activities from first to fifth grades and decrease in preference for feminine activities. The correlation between preference for male activities and age in this sample of girls is .284 ($p < .001$). On the other hand, boys are consistently high in their preference for masculine activities and consistently low for feminine activities throughout all grades, showing no marked trend toward increased or decreased preference for either sex typed behaviors. These preferences are set early on in development and do not change.

TV Violence and Aggression

What about the relation between television violence viewing and aggressive behavior which had been demonstrated in a previous 10 year longitudinal study? This relation has now been corroborated almost two decades later with subjects of different ages in a different geographical region of the United States. Table 1 presents the correlations between television violence and aggression for all subjects for each of the three waves. All the correlations between television violence and aggression are positive, most significantly so. In general the correlations are higher for girls than for boys which is an interesting difference from the previous studies in which the relation for boys was stronger.

Sex Typed Behavior and Aggression

In fact previous studies have shown a relation between masculinity and aggression. In this study a measure of preference for sex typed toys and games was used to determine appropriate sex role behavior. The measure of preference for sex typed activities comprised a booklet of four pages, each of which contained six pictures of children's

activities. Two pictures of each set had been previously rated masculine, two feminine and two neutral by 67 college students who had designated the activities as popular for boys and girls. The 24 pictures finally used in this procedure were selected with good reliability. The task for the children was to select the two activities they liked best on each page and they received a score for the number of masculine, feminine and neutral pictures they chose. The reason for including a neutral category is that even though less masculine boys may not like traditionally feminine activities they might prefer neutral over traditionally masculine ones. Similarly for girls we anticipated that those who did not prefer traditionally feminine activities, might also eschew traditionally masculine activities but would subscribe to neutral ones. Here, however, we were surprised. One of our most interesting findings is that both boys and girls prefer more traditionally masculine activities as they get older. The mean increase in score is highly significant for both sexes. However, as shown in Table 2, preference for neutral sex typed activity related negatively to aggression consistently for both boys and girls. It is interesting further that frequency of television viewing is positively associated with preference for male activities ($r = .22$, $p < .001$ in girls and $.23$ in boys) and negatively associated with preference for female activities ($r = -.16$ for girls, $p < .01$ and $-.04$, ns. for boys).

Intervention Experiment

In the second year of the longitudinal study certain experimental procedures were instituted in an attempt to attenuate the demonstrated relation between viewing of violence on television and subsequent aggressive behavior. For this phase of the study a subsample of 132 children who were high violence viewers was treated. Half of them were randomly selected for two series of interventions designed to convince children that TV violence was unrealistic and should not be imitated. The other half received a control treatment. The first series done at the beginning of the second year included three sessions in small groups during which we attempted to teach the subjects how unrealistic TV violence is. We showed them brief excerpts from violent shows and conducted a highly structured discussion of how unrealistic the actors' behaviors were and how their problems could have been solved unaggressively. The placebo group was shown non-violent educational excerpts followed by discussion of their content. Then, at the beginning of the third year, we used a more formal attitude change procedure on our experimental subjects. Each of the experimental subjects was asked to write a paragraph on "why TV violence is unrealistic and why viewing too much of it is bad." Over the course of two sessions, the children in the experimental group wrote the paragraph, received suggestions and rewrote it, were taped reading the paragraph, and watched a TV tape of themselves and their classmates reading the paragraphs. The subjects were told that the tapes were going to be shown to the school children in Chicago. The placebo group also made a tape, but it was about "what you did last summer." Four months after this intervention, we collected the final wave of data on all the children in the study. Remarkably, as shown in Table 3, we found

that the mean peer-nominated aggression score for the experimental group ($N = \overset{59}{\cancel{62}}$) was now significantly lower than the score for the placebo group ($N = \overset{58}{\cancel{62}}$), although a year previously the two groups were approximately equal in score. The difference is highly significant as evaluated by analysis of covariance with sex, grade and pretreatment aggression score as covariates.

Two multiple regression analyses suggest what happened in the intervention to bring about the lower aggression scores on the part of high violence viewers who were in the experimental group. Table 4 represents the predictors to aggression from a set of variables including sex, grade, television violence, extent of identification with TV characters and judgment of TV realism.

The most striking result in this table is the lack of relation between television violence and aggression in the experimental group and the continued positive relation in the placebo group, almost the same degree of relation as in the general population. The best predictor, however, in the experimental group was identification with TV characters. Those subjects who had higher self-rated identification with TV characters had higher peer nominated aggression scores. There was no significant relation in the placebo group between identification and aggression. The sheer amount of violence viewed by that group was sufficient to predict aggression, regardless of whether the subjects identified with the character. Gender, as would be expected, continued to be a good predictor of aggression in both groups -- boys were more aggressive than girls in all conditions. Grade level was a predictor only in the placebo group. This is not surprising since grade and aggression, as we stated before, are positively related and in the the placebo group, there was no intervention introduced in order to diminish

aggression. In the experimental group the relation disappeared. Actually, the intervention was more successful with the older children in the experimental group. Older children improved considerably more in their attitude toward television than younger children as is seen in their higher average change scores. Furthermore, older children tended to identify less with TV characters than did younger children even before the intervention and, after the intervention, decreased in identification score even more. Additionally, as we said before, the intervention apparently did not work for those subjects who identified with TV characters. They continued to get high aggression scores.

The regression represented in Table 5 suggests why those subjects who identify with TV characters were not susceptible to the treatment. The treatment attempted to change attitudes about television and about aggression as well. As a manipulation check six attitudinal questions were asked before and after treatment, e.g., "How much of what kids see on television is fake? "How likely is it that watching a lot of violent television shows would make a kid meaner? "Are television shows with a lot of hitting and shooting harmless for kids?" The subjects responded to these questions on a five point scale. The score was the sum of the weighted responses. A change score was calculated for each child by subtracting the pretreatment score from the post treatment score. The larger the score, the more the child changed toward a more realistic attitude. The multiple regression in Table 5 predicts to the extent of attitude change. The most important predictor is identification with TV characters. The more identified were the subjects with TV characters the less likely were they to change their attitudes toward television as a result of the intervention. You will remember also that the more the youngsters identified with TV characters the more

aggressive they were. Extent of identification with TV characters is thus demonstrated to be an important mediating variable in the relation between television violence and aggression. The only other significant predictor was a self-report on the extent to which they read fairy tales or had fairy tales read to them. The more extensive the reading of fairy tales, the more likely was the attitude toward television to change. This latter finding is in keeping with Jerome Singer's contention that training in fantasy can affect the relation between television violence and behavior.

Thus in this combined laboratory/field study of the relation between violent television and aggressive behavior, we have determined that the relation holds across state lines, that both boys and girls are affected, that a crucial developmental period for establishing the association and reinforcing the bond is between the ages of six and ten, that a critical period is between ages eight and nine when television viewing is at its peak, and that, among the crucial variables, are the extent to which the youngster identifies with characters on television and is able to distinguish between reality and fantasy. But most important of all, we have demonstrated that it is possible to intervene, especially around ages nine to ten, with an attitude change approach to attenuate the relation between violence viewing and aggressive behavior. Such a demonstration would have been less likely had we not used both laboratory and field methods with the same subject population -- laboratory, in that we randomly assigned subjects to experimental and placebo groups who were given different treatments; field, in that subjects were originally selected from a larger group whose real life behavior had been assessed by a variety of measures and whose training was evaluated by change in these measures, including both peer nominated aggression and self-rated attitudes.

Table 1

Correlations Between Television

Violence Viewing and Peer Nominated Aggression

	<u>All Subjects</u>	<u>Males</u>	<u>Females</u>
1st grade	.212****	.160*	.210***
2nd grade	.234****	.204**	.245****
3rd grade	.232****	.191**	.205**
4th grade	.224****	.184*	.260****
5th grade	.261****	.199*	.294****

Table 2

Correlations Between Preference for Neutral Sex Typed

Activities and Peer Nominated Aggression

	<u>All Subjects</u>	<u>Males</u>	<u>Females</u>
1st grade	-.217****	-.175*	-.197**
2nd grade	-.210****	-.086	-.294***
3rd grade	-.180***	-.151	-.135
4th grade	-.170***	-.200**	-.049
5th grade	-.193***	-.117	-.140

*.05

**.025

***.01

****.005

Table 3

The Effect of the Intervention on Mean
Level of Aggression over the Course
of One Year

	Mean Peer Nominated Aggression (Peeragg)	
	Before (1978)	After (1979)
Experimental Group (N=59)	154.0	175.3
Placebo Group (N=58)	158.0	242.8

Analysis of Covariance

	<u>Source</u>	<u>df</u>	<u>F</u>	<u>Signif.</u>
Covariates	Sex	1	1.23	--
	Grade	1	0.00	--
	Peeragg 1978	1	61.12	.001
Effects	Group	1	6.40	.013
Error		112		
Total		116		

Table 4

Multiple Regressions Predicting 1979 Peer Nominated Aggression for Experimental and Control Group from Grade, Sex and 1979 Television Viewing Behavior^a

Predictor Variable	Experimental Group		Placebo Group	
	Raw Corr	Beta	Raw Corr	Beta
Sex	.268**	.394***	.260**	.231
Grade	-.042	.109	.282**	.303*
TV Violence Viewing	.066	.004	.281*	.192
Identification With TV Characters	.385****	.550****	.129	.100
Judgment of TV Realism	-.016	-.292*	.153	.060

$R^2 = .318$, $F(5,44) = 4.10$, $p < .006$ $R^2 = .222$, $F(5,45) = 2.56$, $p < .050$

* $p < .05$

** $p < .025$

*** $p < .01$

**** $p < .005$

^aPairwise deletions of missing data were used since listwise deletions did not yield any major differences.

Table 5

Multiple Regression Predicting
Attitude Change in the Experimental
Group as a Function of the Child's
Behaviors One Year Earlier (1978)^a

Predictor Variable	Raw Correlation	Beta
Sex	.088	.133
Grade	.138	.034
Identification with TV Characters	-.341***	-.360***
Television Violence Viewing	.077	.176
Judgment of TV Realism	-.154	—
Reported Reading (or Being Read) Fairy Tales	.220*	.255*

$R^2 = .209$, $F(5,52) = 2.74$, $p < .04$

* $p < .05$

** $p < .025$

*** $p < .01$

^a A stepwise regression was used. Stepping was stopped when no variable could increase R^2 by .001 ($N = 58$).

Figure 1

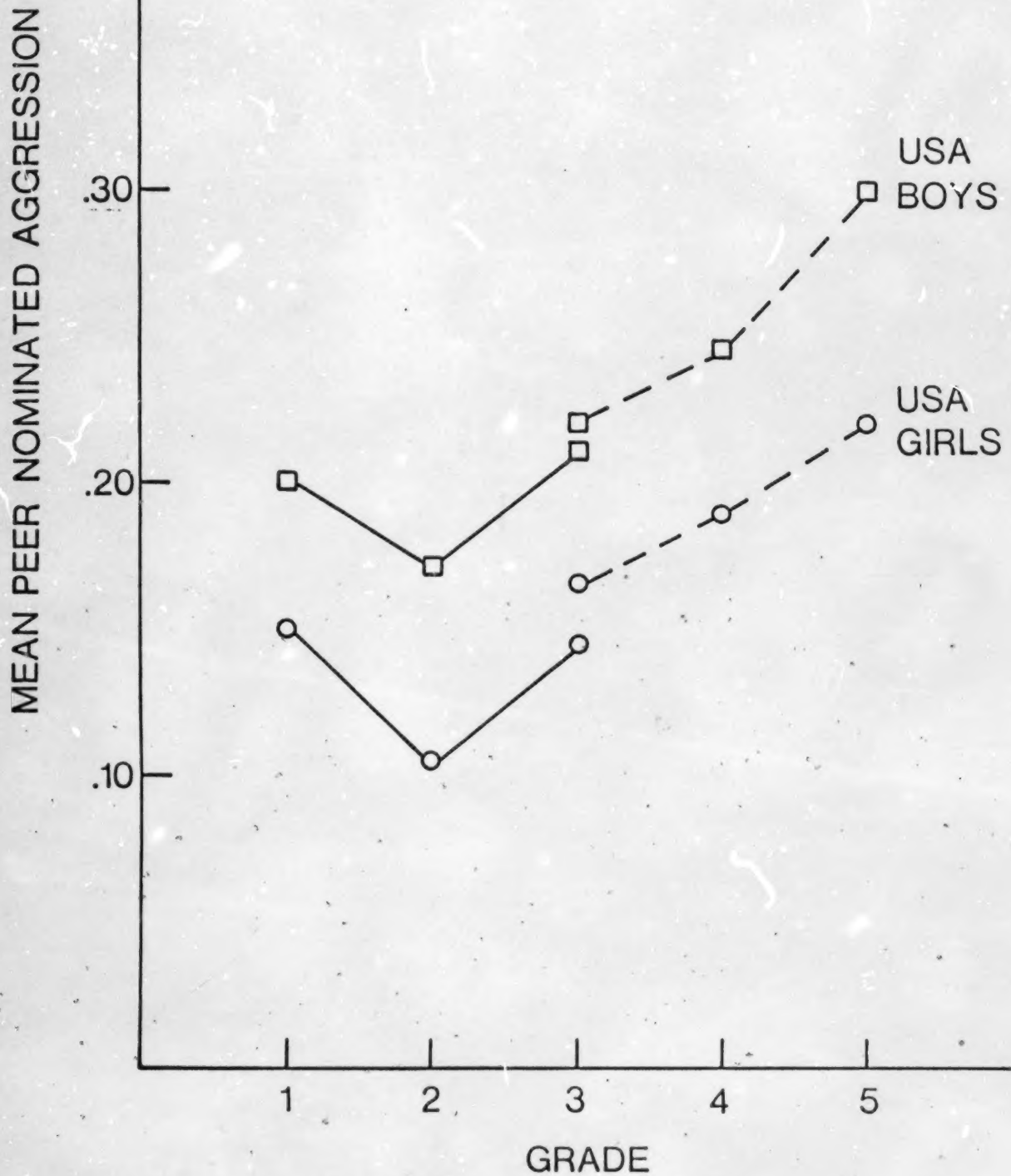


Figure 2

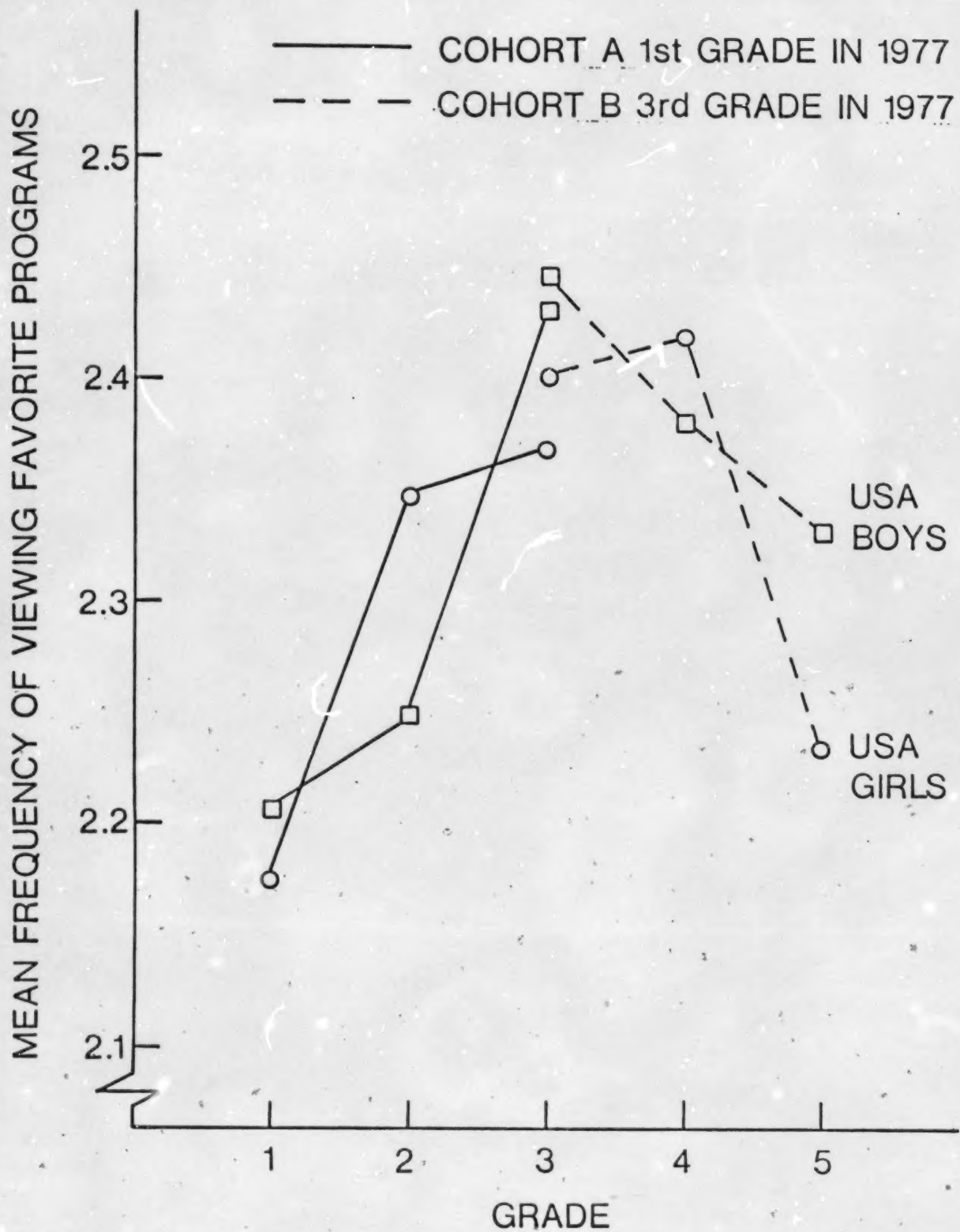


Figure 3

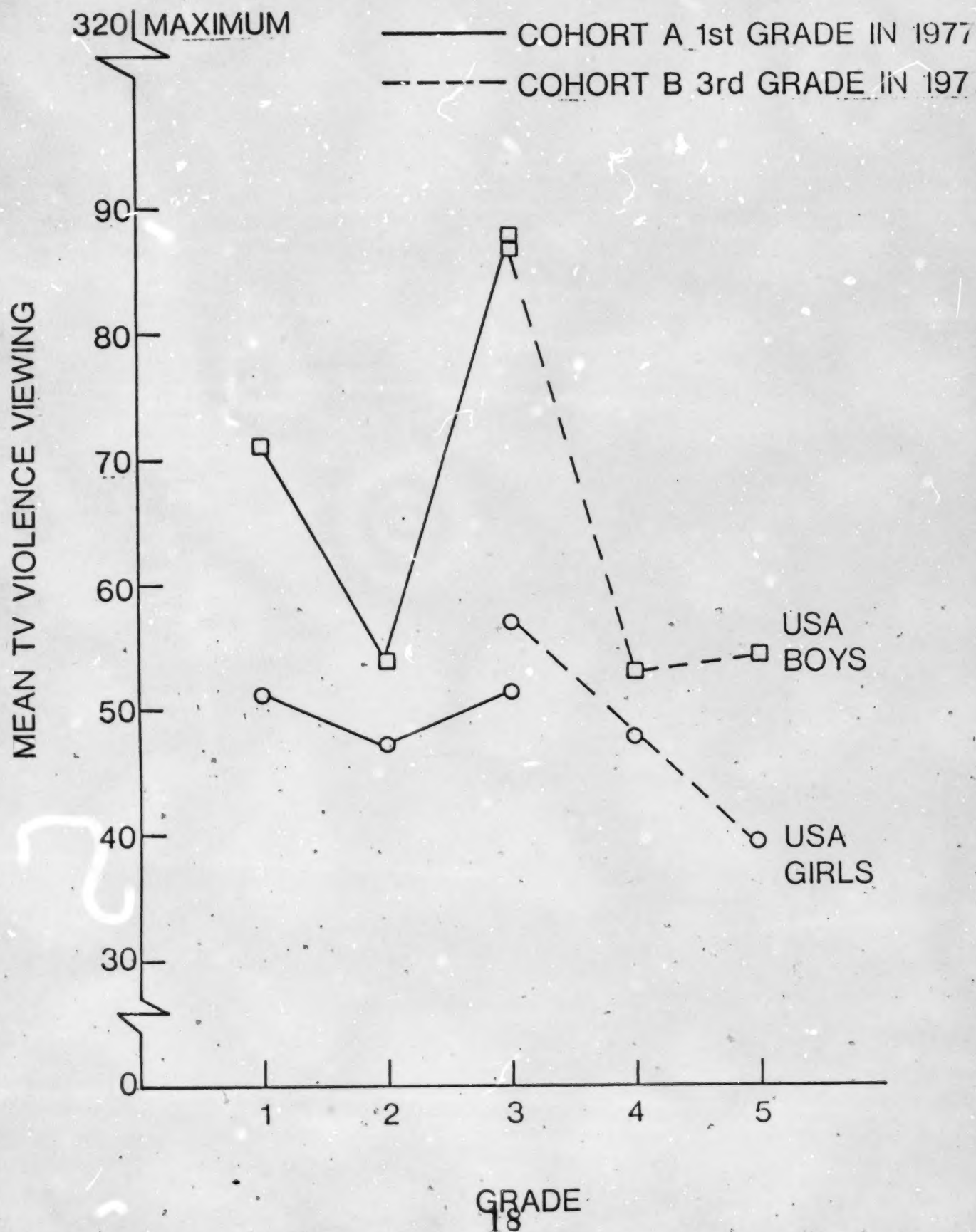


Figure 4

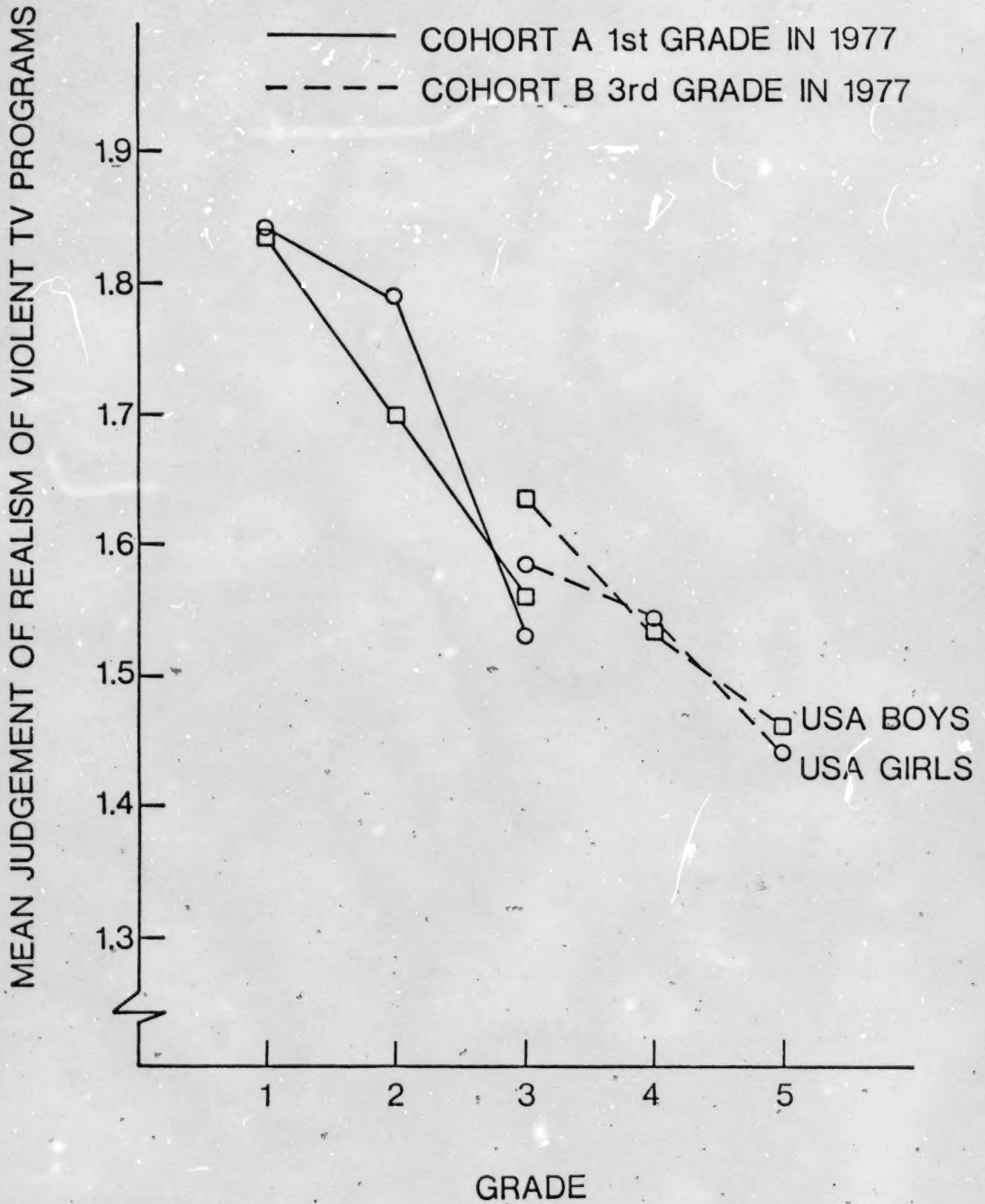


Figure 5

